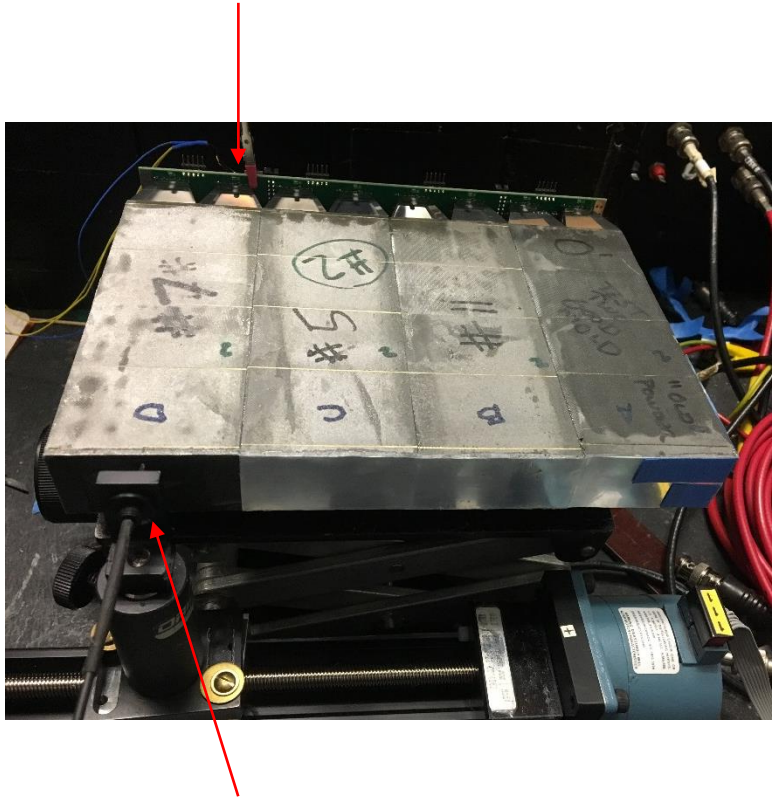
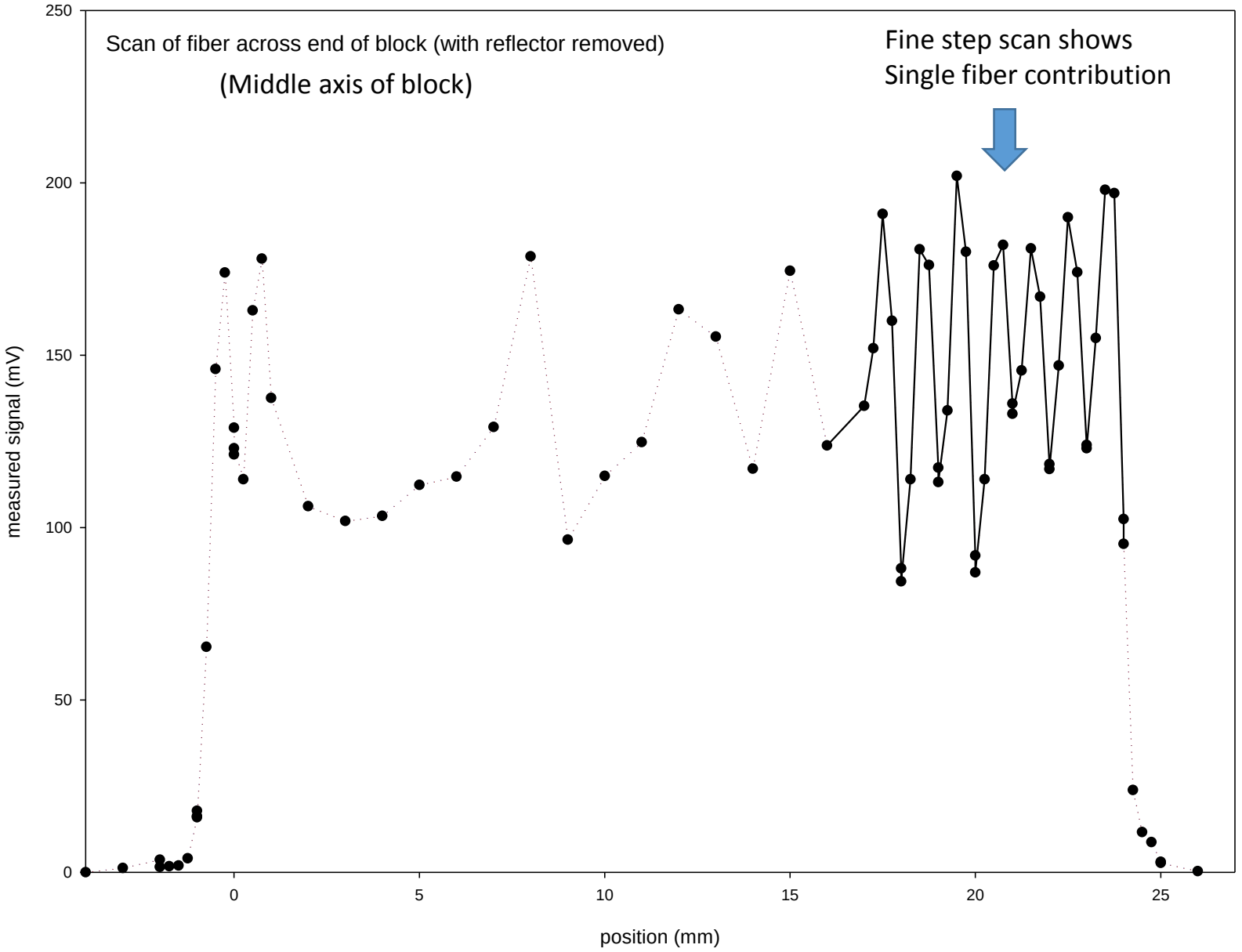
Light Distribution / Response mapping of EMCal Block and light guides

7/15/16

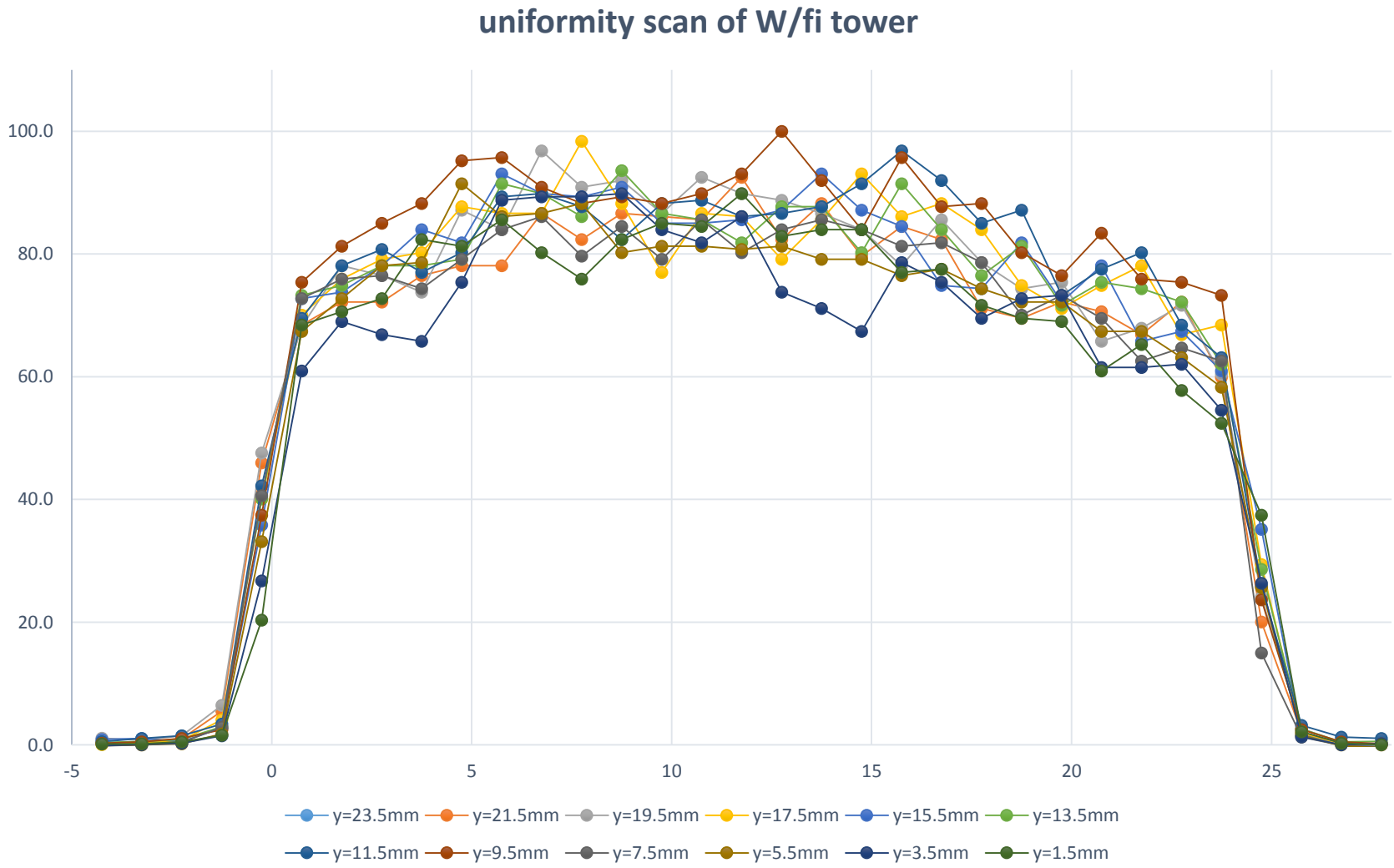
Measured signal is summed output of 4 sipms on this tower

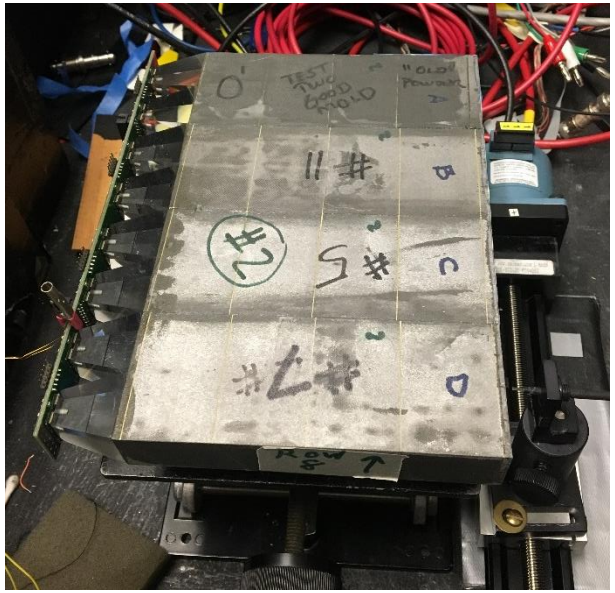


362nm LED into 1mm diam fiber scans across open end of tower
Fiber ~ 0.5mm from block face

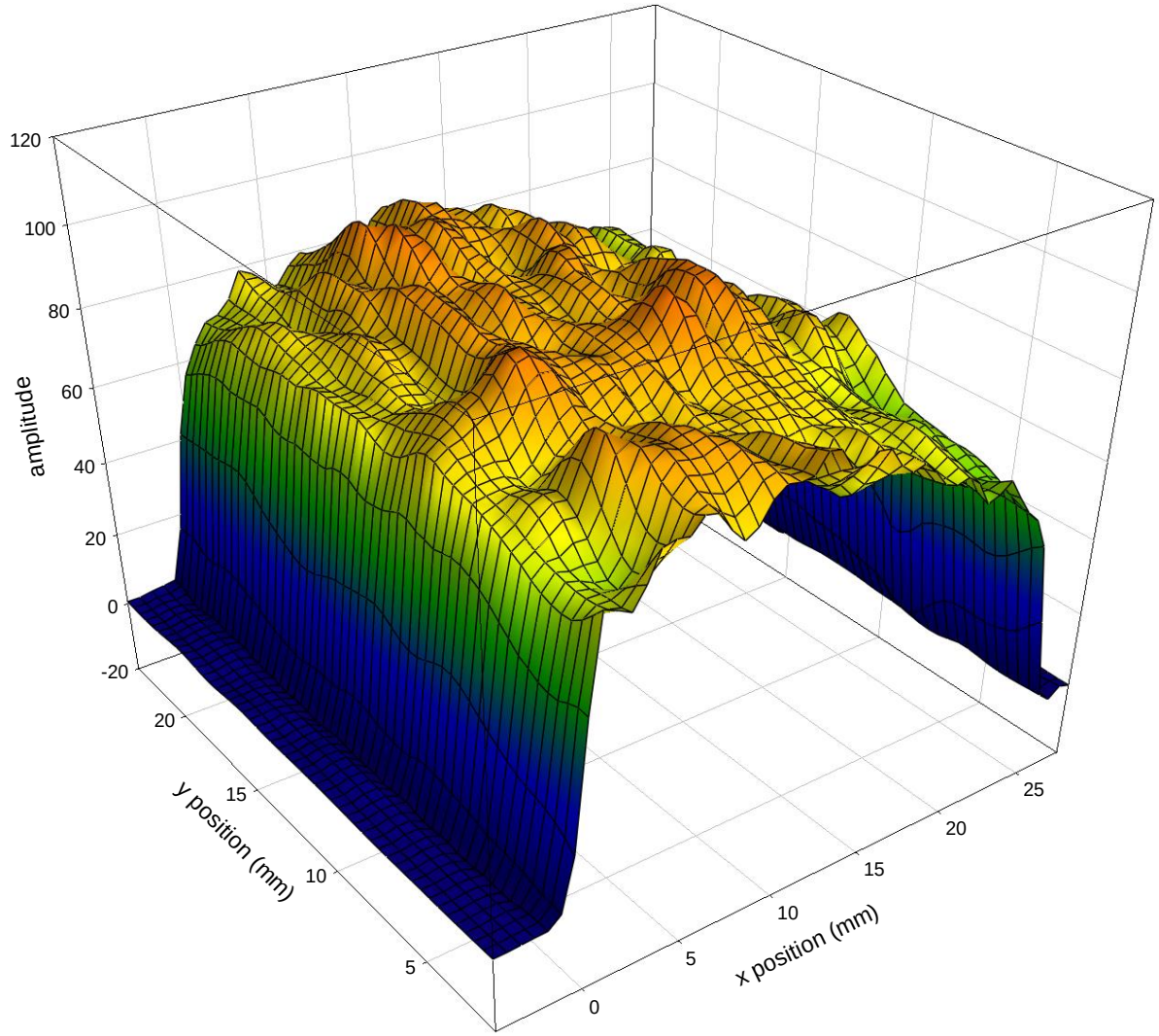


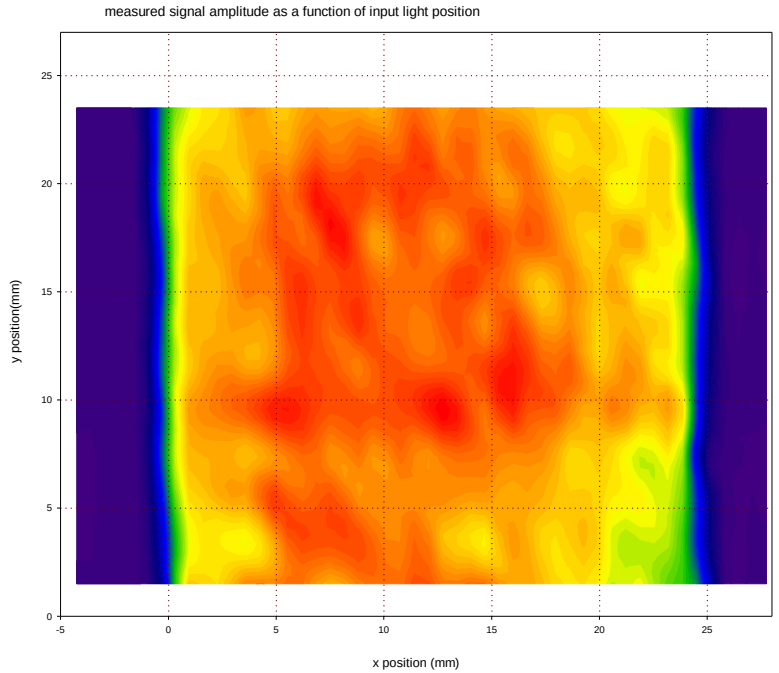
Scans across X dim
At different Y values



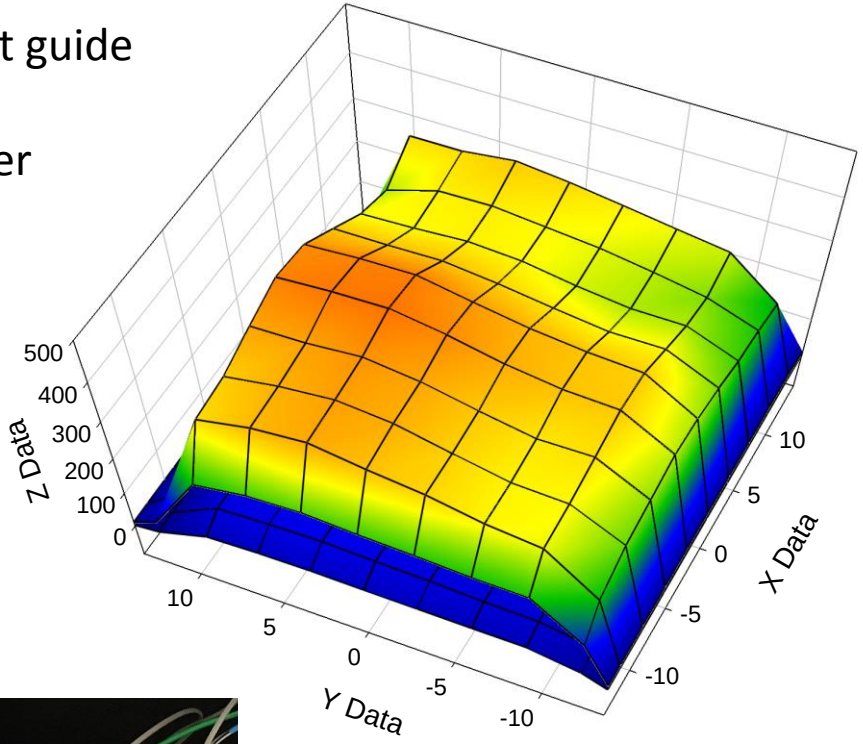


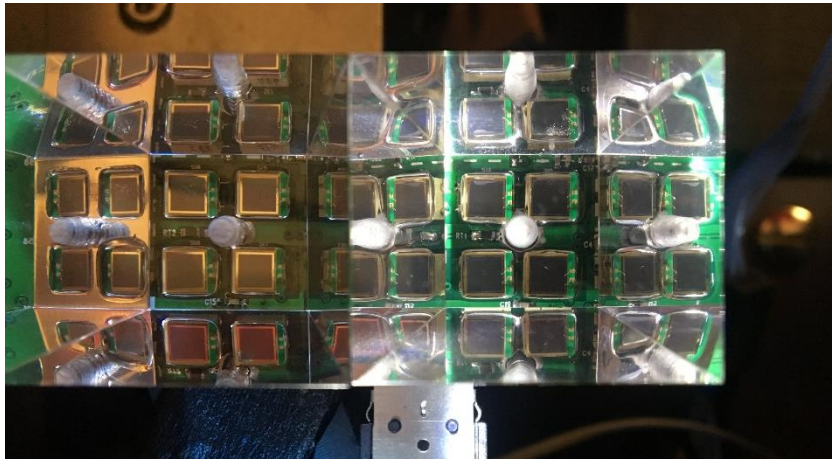
Data from slide 3 plotted as 3D surface

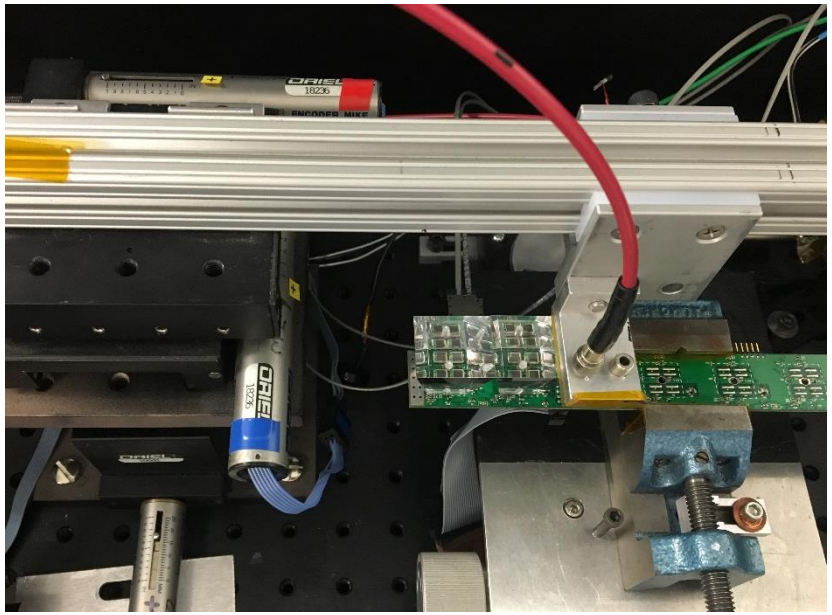


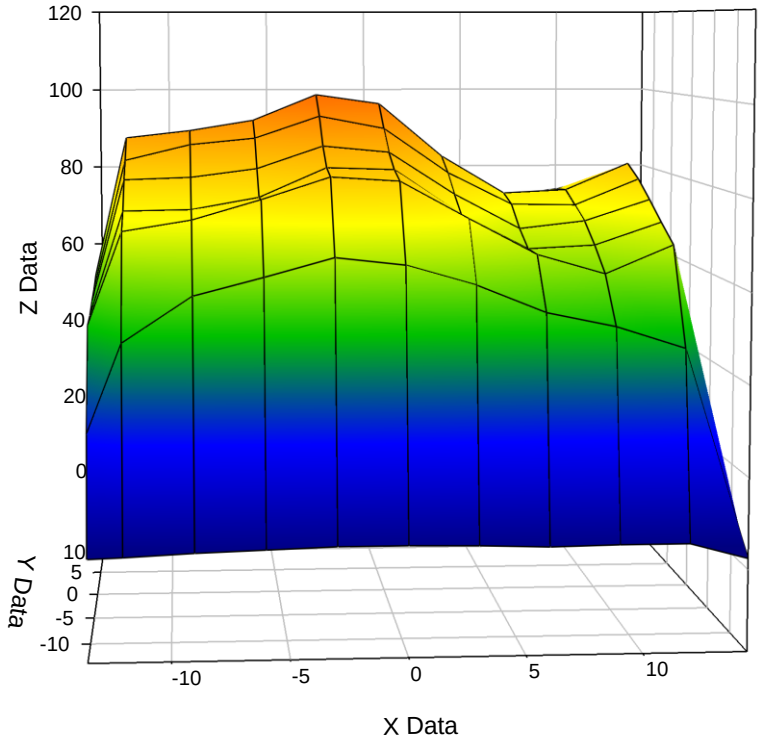


Response map of tower 1 light guide
(light guide only – no block)
420nm LED / 0.6mm diam fiber
Fiber ~2mm from LG surface

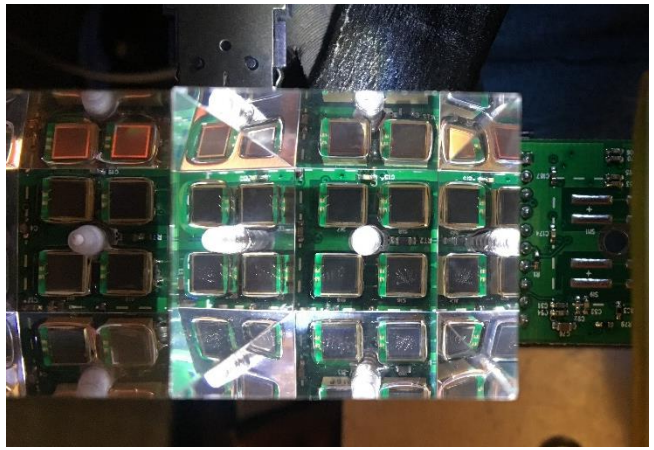


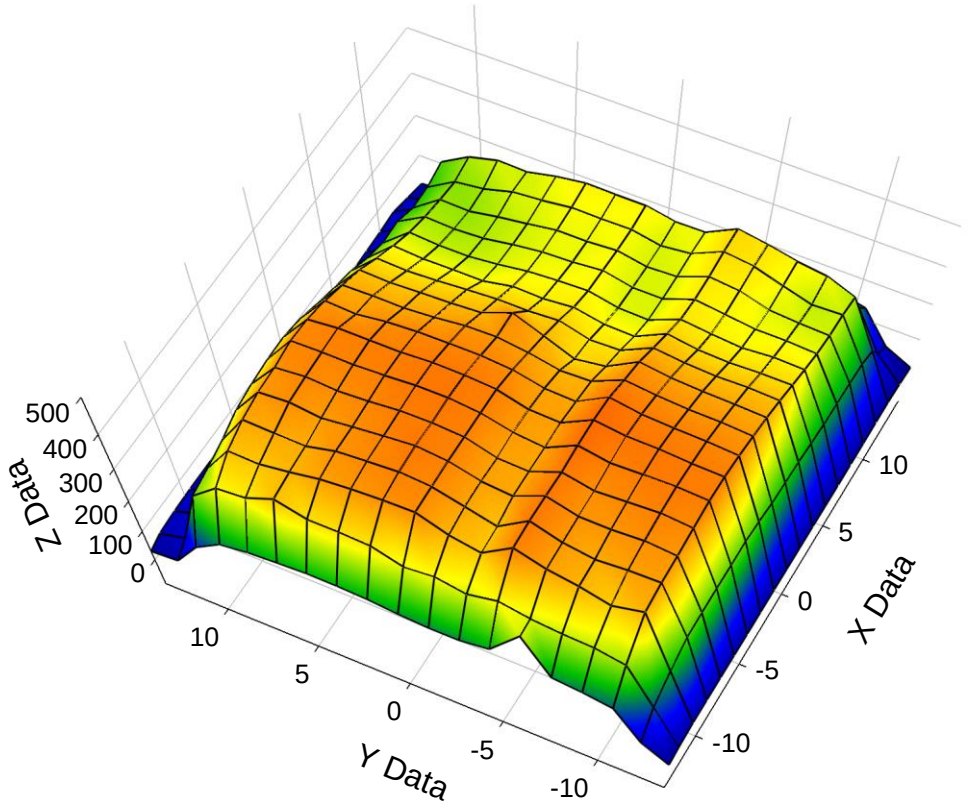


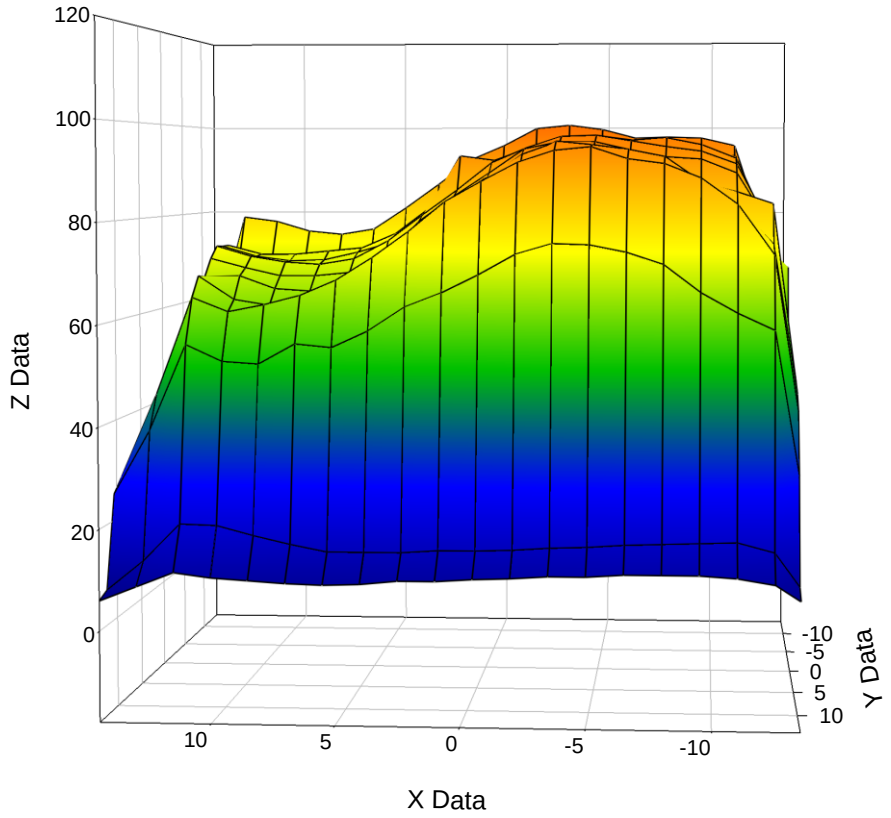




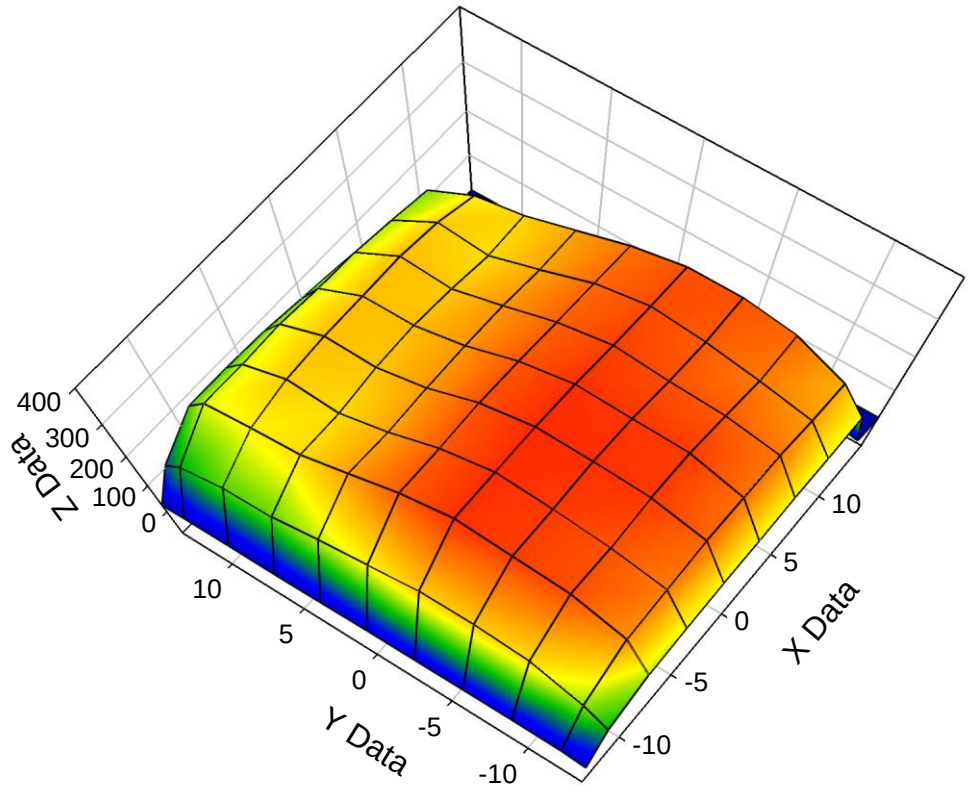
Response map of tower 2 light guide + 4 sipms on EMCal 1x8 preamp board
Measured amplitude (analog sum of 4 sipms) vs X-Y position (mm)

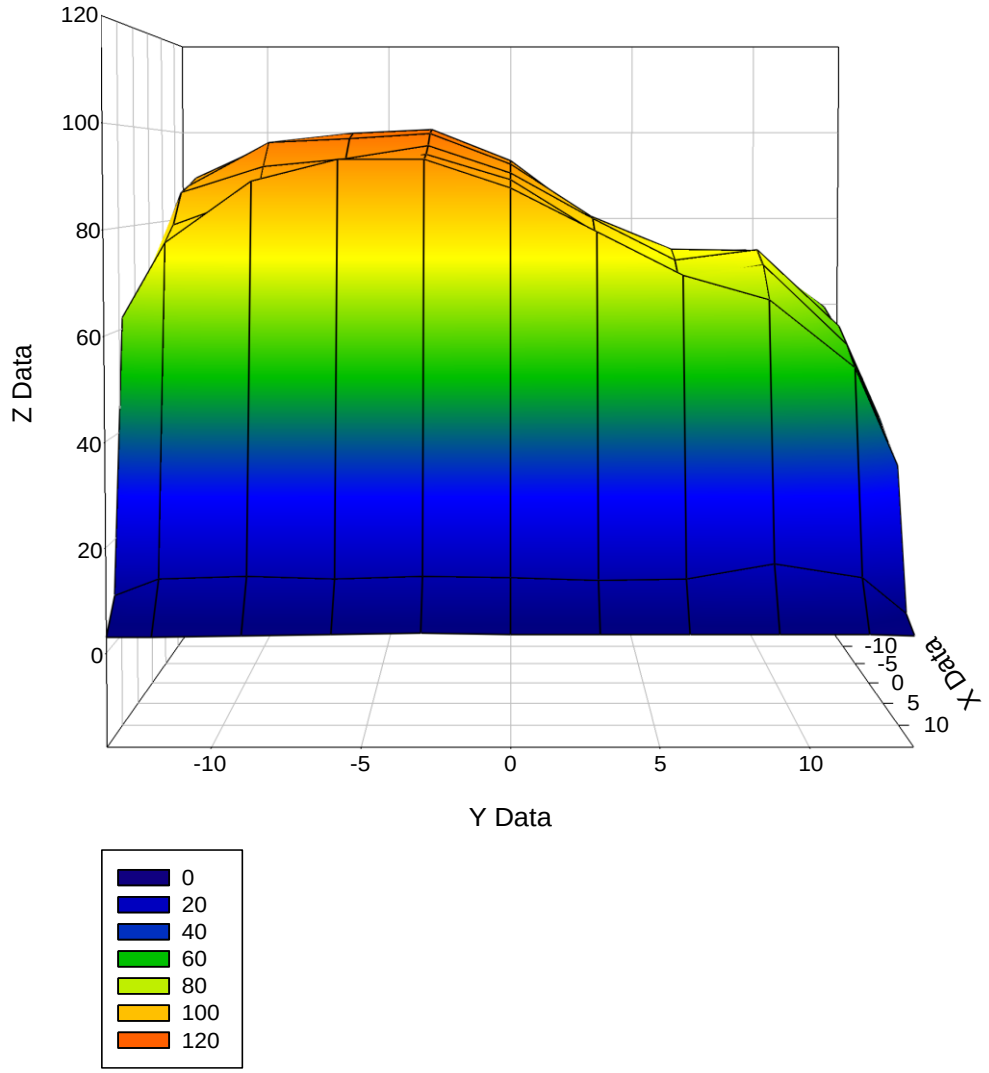






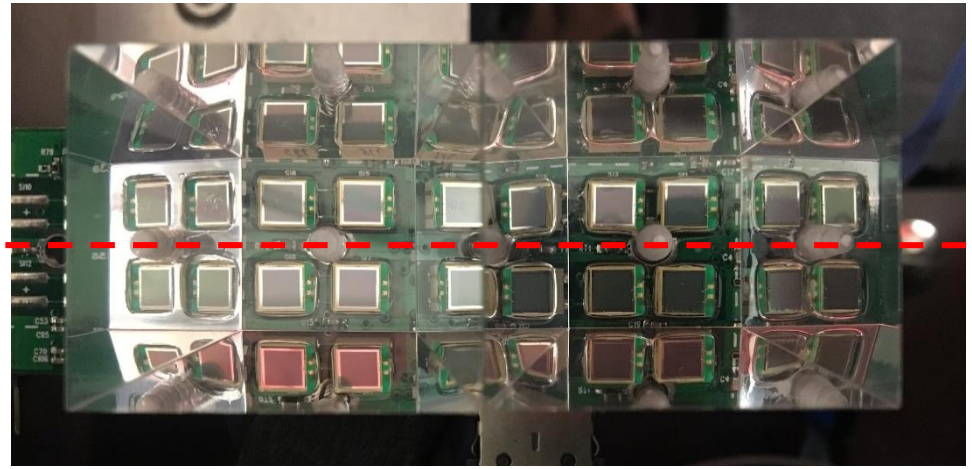
Channel 2 light guide, rotated 90 deg in measurement setup

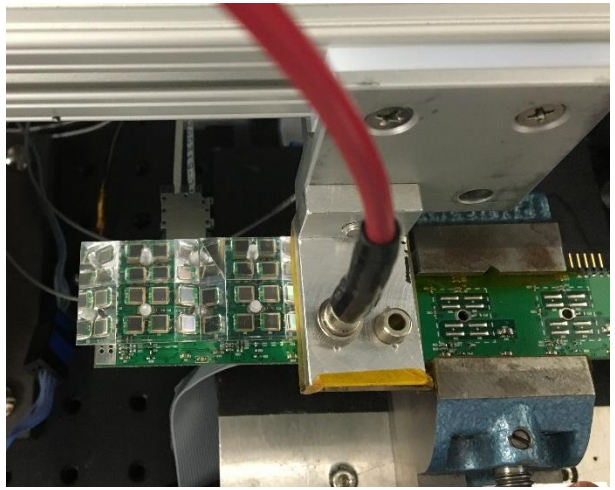


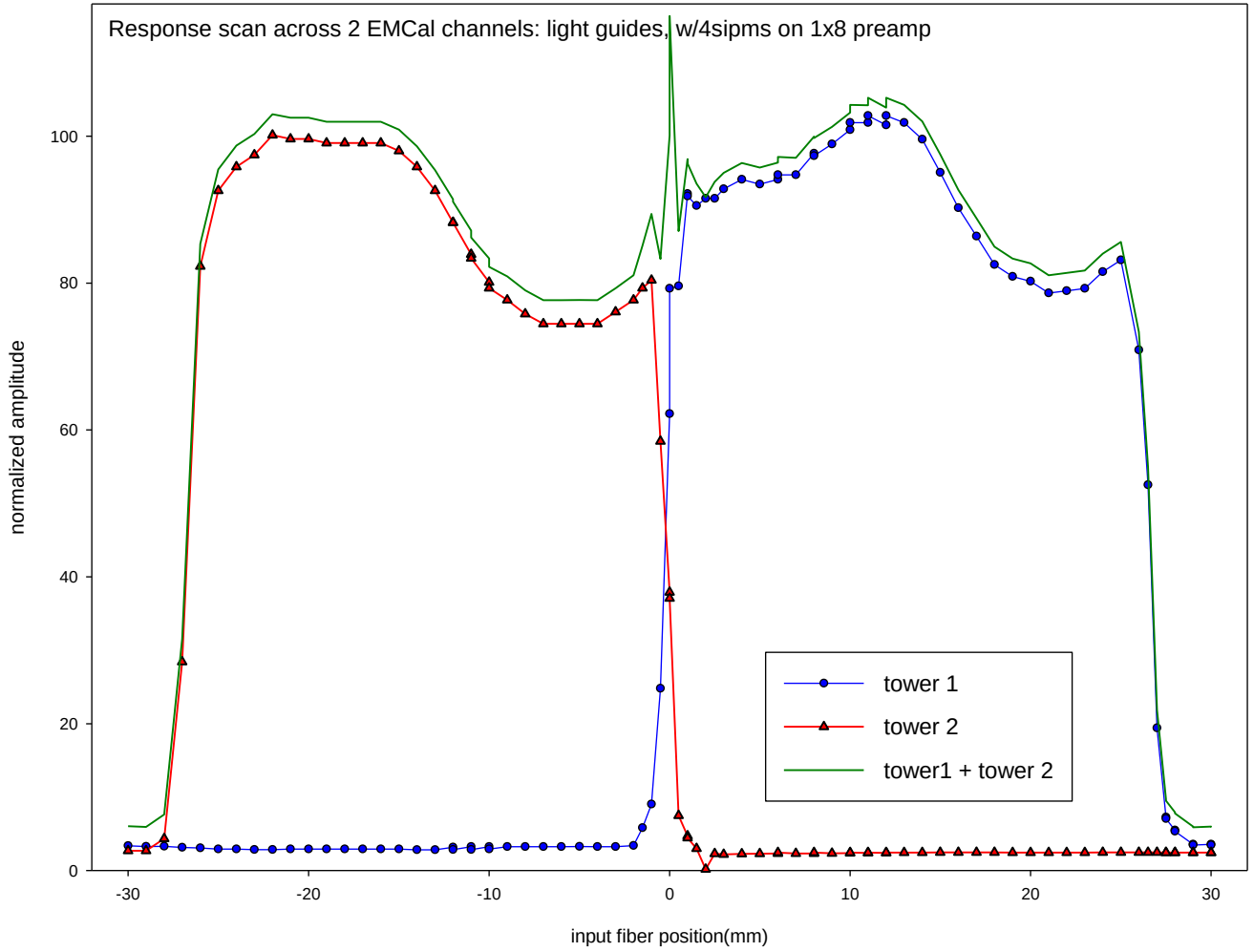


Response pattern followed light guide when rotated
In test setup.

Scan along central axis of 2 light guides,
along 1x8 preamp board axis to characterize gap between LG's.
420nm LED / 0.6mm diam fiber ~ 0.5mm from LG surface







- Not clear what causes asymmetric response pattern.
    - Possibly alignment of sipms relative to light guide?
- Gap between light guides does not cause a large drop in response
- Measurement method makes edge response look worse – due to fiber projected spot moving off block edge